

CLAIMS:

1. (New) A surgical jig for defining an axis relative to a body part, the jig comprising:
 - a support;
 - a first guide element having a first guide channel, the first guide element being mounted on the support and being translatable over a first plane; and
 - a second guide element having a second guide channel, the second guide element being mounted on the support and being translatable over a second plane, the second plane being parallel to the first plane, and wherein the first guide channel and second guide channel between them define a substantially linear jig axis.
2. (New) The jig of claim 1, further comprising a drive mechanism operable to move one or both of the first guide element and the second guide element.
3. (New) The jig of claim 1, wherein the support is a frame.
4. (New) The jig of claim 2, wherein the drive mechanism includes first and second carriers bearing the first guide element, the first and second carriers being disposed parallel to the first plane and being perpendicular to each other.
5. (New) The jig of claim 4, wherein the drive mechanism includes a motor actuable to drive the carrier to control the position of the first guide element over the plane.
6. (New) The jig of claim 4, wherein the support includes a first pair of opposed sides, each side including a slider and a second pair of opposed sides, perpendicular to the first pair of opposed sides, wherein each side includes a slider, and wherein the first carriage extends between the sliders of the first pair of sides and the second carriage extends between the sliders of the second pair of sides.

7. (New) The jig of claims 4, wherein the drive mechanism includes third and fourth carriers bearing the second guide element, the third and fourth carriers being disposed parallel to the second plane and being perpendicular to each other.
8. (New) The jig of claim 7, wherein the drive mechanism includes a motor actuable to drive the carriers to control the position of the second guide element over the plane.
9. (New) The jig of claim 7, wherein the first pair of opposed sides, each include a further slider and the second pair of opposed sides each include a further slider, and wherein the third carriage extends between the further sliders of the first pair of sides and the fourth carriage extends between the sliders of the second pair of sides.
10. (New) The jig of claim 6, wherein each slider includes a guide track having a bushing slidably mounted therein and wherein the ends of the carriers are each received in a respective bushing.
11. (New) The jig of claim 4, wherein each carrier is a lead screw.
12. (New) The jig of claim 4, wherein each carrier is independently drivable.
13. (New) The jig of claim 12, further comprising a separate motor for driving each carrier.
14. (New) The jig of claim 13, wherein each motor is an electric motor.
15. (New) The jig of claim 13, wherein each motor is a stepper motor.
16. (New) The jig of claim 1, further comprising a first marker detectable by a tracking system.

17. (New) The jig of claim 16 , further comprising a second marker detectable by a tracking system, the second marker being attached to the second guide element and wherein the first marker is attached to the first guide element.
18. (New) The jig of claim 16, further comprising an instrument passing through the first guide channel and second guide channel and wherein the first marker is attached to the instrument.
19. (New) The jig of claim 1, wherein the support includes a plurality of feet engagable with a surface of the body part.
20. (New) The jig of claim 19, wherein the plurality of feet can be clamped about the body part to secure the jig to the body part.
21. (New) The jig of claim 1, further comprising a first arm by which the first guide element is connected to the support and a second arm by which the second guide element is connected to the support.
22. (New) The jig of claim 21, wherein the first and second guide arms are spaced along a longitudinal axis of the support and are each pivotally connected to the support and can pivot about the longitudinal axis of the support.
23. (New) The jig of claim 21, wherein the first and second arms are each extendable along a longitudinal axis of the arm.
24. (New) The jig of claims 21, further comprising a base member pivotally attached to the support, and wherein the base member includes a formation for receiving a fastener to secure the guide to a bone.

25. (New) The jig of claim 24, wherein a part of the support is journaled within the base member and wherein the base member can clamp around the part of the support to prevent relative movement between the support and base member when secured to the bone by the fastener.

26. (New) A computer-aided surgical system for determining a linear axis relative to a body part, the system comprising:

the jig of claim 16;

a tracking system for determining the positions of each marker and producing marker position data; and

a data processing device configured to operate on the marker position data and data representing the position of a predetermined axis to determine when the jig axis corresponds to the predetermined axis.

27. (New) A method for defining an axis relative to a body part, using a surgical jig having a support, a first guide element having a first guide channel, and a second guide element having a second guide channel, comprising the steps of:

locating the surgical jig adjacent the body part; and

positioning the first guide at a first position in a first plane and/or positioning the second guide at a second position in a second plane parallel to the first plane, wherein a jig axis is defined between the first and second guide channels.

28. (New) The method of claim 27, further comprising the step of determining the position of a predetermined axis relative to the body part.

29. (New) The method of claim 28, further comprising the step of moving the first and/or second guide elements until the jig axis is substantially co-linear with the predetermined axis.

30. (New) The method of claim 27, wherein the first guide element and/or second guide element are manually positioned.

31. (New) The method of claim 27, wherein the first guide element and/or second guide element are automatically positioned.

32. (New) The method of claim 31, further comprising the step of determining the position of the first guide element and the position of the second guide element.

33. (New) The method of claim 32, wherein the position of the first guide element and the position of the second guide element is determined by wirelessly tracking the first guide element and the second guide element.

34. (New) The method of claim 32, further comprising the step of determining the position of the jig.

35. (New) The method of claim 34, wherein the position of the jig is determined by wirelessly tracking the apparatus and wherein the position of the first guide element is determined relative to the position of the jig and the position of the second guide element is determined relative to the position of the jig.

36. (New) The method of claim 33, further comprising the step of:

determining the current position of the jig axis based on the current positions of the first and second guide elements;

calculating positional data representing the current position of the jig axis relative to the body; and

generating a visual representation of the position of the jig axis relative to the body.

37. (New) The method of claim 33, further comprising the step of:

determining the current position of the jig axis based on the current positions of the first and second guide elements;

generating positional data representing the current position of the jig axis;

determining the position of a pre-determined axis relative to the body; and

generating control signals to drive the jig so as to reduce the separation between the position of the jig axis and the position of the pre-determined axis.

38. (New) The method of claim 37, further comprising the step of generating control signals to drive the jig until the jig axis and the position of the pre-determined axis are substantially co-linear.

39. (New) Computer program code executable by a data processing device to control a surgical jig having a support, a first guide element having a first guide channel and a second guide element having a second guide channel, the first guide channel and the second guide channel defining between them a jig axis, the computer program code including instructions to:

generate data representing the position of a predetermined axis of a body part;

determine the current positions of the first guide element and the second guide element;

generate data representing the position of the jig axis defined by a current position of the first guide element and second guide element; and

generating control signals to drive the first and/or second guide elements to reduce the separation between the jig axis and the predetermined axis.

40. (New) A computer readable medium bearing computer program code as claimed in claim 39.